

CLAIMS:

What is claimed is:

1. A method of correcting a fault in a process tool for semiconductor manufacturing comprising:

collecting old service activity data for old faults in said process tool;
receiving new service activity data for a new fault in said process tool;
comparing said new service activity data to said old service activity data;
identifying matching service activity data from said comparison; and
performing a corrective action based on said matching service activity data.

2. The method of claim 1, further comprising:

performing one or more tests on said process tool using said matching service activity data in order to generate new matching service activity data, wherein said new matching service activity data narrows said matching service activity data.

3. The method of claim 2, wherein said performing said one or more tests includes ranking each test in said one or more tests according to the number of old faults in said matching service activity data that are projected to remain if said ranked test results in a pass.

4. The method of claim 3, wherein the rank of said ranked test increases as the number of old faults in said matching service activity data that are projected to remain if said ranked test results in a pass decreases.

5. The method of claim 2, wherein said performing said one or more tests includes ranking each test in said one or more tests according to the number of old faults in said matching service activity that are projected to remain if said ranked test results in a fail.

6. The method of claim 5, wherein the rank of said ranked test increases as the number of old faults in said matching service activity data that are projected to remain if said ranked test results in a fail increases.

7. The method of claim 1, wherein said performing said corrective action includes replacing one or more manufacturing system (MS) part in said process tool.

8. The method of claim 7, wherein said replacing said one or more MS parts includes ranking each MS part replacement according to the number of old faults in said matching service activity data that are corrected upon replacement of said ranked MS part replacement.

9. The method of claim 8, wherein the rank of said ranked MS part replacement increases as the number of old faults in said matching service activity data that are corrected upon replacement of said ranked MS part replacement increases.

10. The method of claim 7, wherein said replacing said one or more MS parts includes ranking each MS part replacement according to the number of old faults in said matching service activity data that are not corrected upon replacement of said ranked MS part replacement.

11. The method of claim 10, wherein the rank of said ranked MS part replacement increases as the number of old faults in said matching service activity data that are not corrected upon replacement of said ranked MS part replacement decreases.

12. The method of claim 1, wherein said collecting said old service activity data for said process tool includes collecting old service activity data for at least one of an etch system, a deposition system, a track system, a thermal system, an ion implant system, a lithography system, a planarization system, a metrology system, and a test system.

13. The method of Claim 1, wherein said performing a corrective action comprises automatically controlling said process tool to correct said fault therein.

14. The method of Claim 1, wherein said performing a corrective action comprises providing service action data to a service operator to assist the service operator in correcting said fault in said process tool.

15. The method of Claim 1, wherein said performing a corrective action comprises isolating said fault in said process tool.

16. A computer readable medium containing program instructions for execution on a processor, which when executed by the processor, cause a computer system to perform the steps in the method recited in claim 1.

17. A system for using a computer system to correct a fault in a process tool for semiconductor manufacturing comprising:

- means for collecting old service activity data for old faults in said process tool;

- means for receiving new service activity data for a new fault in said process tool;

- means for comparing said new service activity data to said old service activity data;

- means for identifying matching service activity data from said comparison; and

- means for performing a corrective action based on said matching service activity data.

18. A system for correcting a fault in a process tool for semiconductor manufacturing comprising:

- a memory configured to store data necessary for correcting said fault;
- and

- a control system configured to:

- collect old service activity data for old faults in said process tool,

receive new service activity data for a new fault in said process tool,
compare said new service activity data to said old service activity data,
identify matching service activity data from said comparison, and
perform a corrective action based on said matching service activity data in order to correct said new fault in said process tool.

19. The system of claim 18, wherein said control system is configured to perform one or more tests on said process tool using said matching service activity data in order to generate new matching service activity data, wherein said new matching service activity data narrows said matching service activity data.

20. The system of claim 18, wherein said process tool includes at least one of an etch system, a deposition system, a track system, a thermal system, an ion implant system, a lithography system, a planarization system, a metrology system, and a test system.